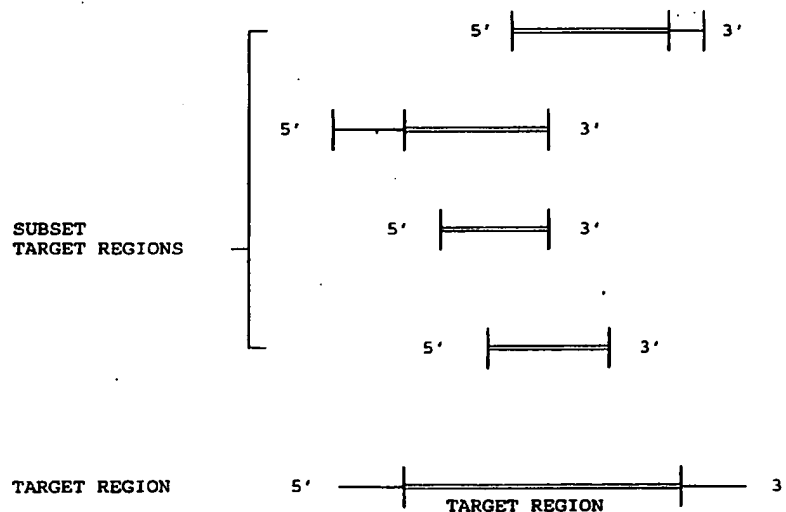




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(74) Agents: HEBER, Sheldon, O. et al.; Lyon & Lyon, First Interstate World Center, Suite 4700, 633 West Fifth Street, Los Angeles, CA 90071-2066 (US).			

(54) Title: ENHANCEMENT OF OLIGONUCLEOTIDE INHIBITION OF PROTEIN PRODUCTION, CELL PROLIFERATION, AND/OR MULTIPLICATION OF INFECTIOUS DISEASE PATHOGENS



(57) Abstract

The invention features the use of a purified first targeted oligonucleotide in combination with either 1) a subtargeted oligonucleotide, 2) second targeted oligonucleotide, or 3) a non-targeted phosphorothioate oligonucleotide, to inhibit protein production of a targeted nucleic acid sequence, cell proliferation, and/or the multiplication of a foreign organism. The subtargeted oligonucleotide contains a truncated version of the targeted oligonucleotide.

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INTERNATIONAL SEARCH REPORT

International Application No

PC1/US 94/08334

A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 C12N15/11 C12N9/00 A61K31/70 A61K48/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 C12N A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	WO,A,93 15194 (WORCESTER FOUNDATION FOR EXPERIMENTAL BIOLOGY) 5 August 1993 *see the whole patent* ----	6-11, 29-35, 50,53, 61,62
P,X	NUCLEIC ACIDS RESEARCH, vol. 21, no. 17, 1993 pages 4119-4125, R.B. DENMAN 'Cleavage of full length APP mRNA by mannerhead ribozymes' *see the whole article* ----- -/--	6-8,29, 31

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

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- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
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Date of the actual completion of the international search

18 July 1995

Date of mailing of the international search report

14.08.95

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Authorized officer

Marie, A

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 94/08334

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP,A,0 318 245 (M-L. TECHNOLOGY VENTURES, L.P.) 31 May 1989	7,29,31, 50
Y	*see the whole patent*	8-11, 19-23, 30, 32-35, 44-49, 52,53, 61,62
X	----- NUCLEIC ACIDS RESEARCH, vol. 16, no. 8, 1988 pages 3341-3358, L.J. MAHER III ET AL. 'Comparative hybrid arrest by tandem antisense oligodeoxyribonucleotides or oligodeoxyribonucleotide methylphosphonates in a cell-free system'	6-8,29, 31,50
Y	*see the whole article*	8-11,30, 32-35, 52,61,62
X	----- NUCLEIC ACIDS RESEARCH, vol. 20, no. 17, 1992 pages 4607-4612, J. GOODCHILD 'Enhancement of ribozyme catalytic activity by a contiguous oligodeoxynucleotide (facilitator) and by 2'-O-methylation'	6-9,29, 31,33, 50,53
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Y	----- EP,A,0 288 163 (THE UNITED STATES OF AMERICA) 26 October 1988	19-23, 44-49,53
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Y	----- WO,A,92 14843 (GILEAD SCIENCES, INC.) 3 September 1992	42,43
	see the whole patent	
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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 94/08334

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	<p>BIOCHEMISTRY, vol. 28, 1989 pages 1340-1346, C. MAJUMDAR ET AL. 'Stepwise mechanism of HIV reverse transcriptase: primer function of phosphorothioate oligodeoxynucleotide' *see the whole article* -----</p>	19-23, 44, 53

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 94/08334

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. Claims: 1-5, 12-18, 24-28, 36-41, 51, 53(partially); 54-60(complete)
2. Claims: 6-11, 29-35, 50, 53(partially); 61, 62(complete)
3. Claims: 19-23, 44-49, 52, 53(partially)
4. Claims: 42, 43

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

information on patent family members

International Application No

PCT/US 94/08334

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